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TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.
SHL.0272US

In Re Application Of: Philippe Gambier

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/675,559	09-30-2003	William L. Miller	35204	3677	6528

Invention: Thermoplastic Seal and Method

COMMISSIONER FOR PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed on
June 29, 2006

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Dated: August 28, 2006

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Signature of Person Mailing Correspondence

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Philippe Gambier § Art Unit: 3677
Serial No.: 10/675,559 §
Filed: September 30, 2003 § Examiner: William L. Miller
For: Thermoplastic Seal and Method § Atty. Dkt. No.: SHL.0272US (68.0412)

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APPEAL BRIEF PURSUANT TO 37 C.F.R § 41.37

Sir:

The final rejection of claims 1-3, 6, 8-16, 20-38, and 40-46 is hereby appealed.

I. REAL PARTY IN INTEREST

The real party in interest is the Schlumberger Technology Corporation.

II. RELATED APPEALS AND INTERFERENCES

None.

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III. STATUS OF THE CLAIMS

Claims 1-3, 6, 8-16, 20-38, and 40-46 have been finally rejected and are the subject of this appeal.

Claims 4, 5, 7, 18, and 19 have been withdrawn (but are subject to rejoinder if generic claims are allowed).

Claims 17 and 39 have been cancelled.

IV. STATUS OF AMENDMENTS

No amendment has been filed after final rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

Independent claim 1 recites an apparatus comprising:

a cable (Fig. 1:4) having an outer surface (Spec., 4:9-10); and

a seal assembly (Figs. 1-9:10), comprising:

a thermoplastic seal (Figs. 1-9:12; Spec., 4:14-15; 5:4, 8; 6:7-15, 17; 7:9; 8:1);

a preload member (Figs. 1, 3, 5:18) adapted to apply a force to and induce cold flow of the thermoplastic seal to seal against the outer surface of the cable (Spec., 4:17-19; 5:13-6:15; 6:19-7:2; 8:5-6).

Independent claim 15 recites a method for sealing, comprising:

providing a control line (Fig. 1:4) having an outer surface, the control line comprising at least one of a hydraulic line, fiber optic line, and electrical line (Spec., 4:9-10);

providing a seal (Figs. 1-9:10) having a component formed of a thermoplastic (Figs. 1-9:12; Spec., 4:14-15; 5:4, 8; 6:7-15, 17; 7:9; 8:1);

inducing cold flow deformation of the component to create a fluidic seal against the outer surface of the control line (Spec., 4:17-19; 5:13-6:15; 6:19-7:2; 8:5-6).

Independent claim 28 recites an apparatus comprising:

a control line (Fig. 1:4) having an outer surface, the control line comprising at least one of a fiber optic line and electrical line (Spec., 4:9-10); and

a seal (Figs. 1-9:10), comprising:

a ferrule (Figs. 1, 2:14; Fig. 3:22; Spec., 4:15-5:2; 5:4-11; 5:15-6:8); and

an adjacent seal member (Figs. 1-9:12; Spec., 4:14-15; 5:4, 8; 6:7-15, 17; 7:9; 8:1) deformed by cold flow about at least a portion of the ferrule to seal against the outer surface of the control line (Spec., 4:17-19; 5:13-6:15; 6:19-7:2; 8:5-6).

Independent claim 38 recites an apparatus comprising:

a cable (Fig. 1:4); and

a seal assembly (Figs. 1-9:10), comprising:

a housing (Figs. 1, 2, 4:2; Figs. 5-10:8);

a deformed thermoplastic seal member (Figs. 1-9:12; Spec., 4:14-15; 5:4, 8; 6:7-15, 17; 7:9; 8:1) that provides a fluidic seal against the housing and the cable (Spec., 4:17-19; 5:13-6:15; 6:19-7:2; 8:5-6).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. **Claims 1-3, 6, 15, 16, 20, 28, 29, 37, And 38 Rejected Under 35 U.S.C. § 103 Over “Admitted Prior Art” (APA) In View Of U.S. Patent No. 3,298,716 (Taylor).**
- B. **Claims 8-13, 21-26, 30-35, And 40-45 Rejected Under § 103 Over APA In View Of Taylor And U.S. Patent No. 6,861,131 (Evans).**
- C. **Claims 8, 9, 14, 21, 22, 27, 30, 31, 36, 40, 41, And 46 Rejected Under § 103 Over APA In View Of Taylor And U.S. Patent No. 6,384,128 (Wadahara).**

VII. ARGUMENT

The claims do not stand or fall together. Instead, Appellant presents separate arguments for various independent and dependent claims. Each of these arguments is separately argued below and presented with separate headings and sub-headings as required by 37 C.F.R. § 41.37(c)(1)(vii).

- A. **Claims 1-3, 6, 15, 16, 20, 28, 29, 37, And 38 Rejected Under 35 U.S.C. § 103 Over “Admitted Prior Art” (APA) In View Of U.S. Patent No. 3,298,716 (Taylor).**

1. Claims 1-3, and 6.

Independent claim 1 was rejected as being obvious over “Admitted Prior Art” (APA) in view of Taylor. A *prima facie* case of obviousness has not been established with respect to the claimed subject matter for at least the reason that no motivation or suggestion existed to combine the reference teachings. *See* M.P.E.P. § 2143 (8th ed, Rev. 3), at 2100-135. It is well-established law that the Patent Office has the burden under § 103 to establish a *prima facie* case of obviousness. *See In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). The Patent Office can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. *Id.*

Clearly, the Examiner has failed to satisfy the requirements for establishing a *prima facie* case of obviousness. Essentially, the argument made by the Examiner in the Advisory Action dated June 6, 2006, is as follows: (1) Taylor teaches element 1; and (2) APA teaches element 2 – therefore, Taylor and APA can be combined to achieve the claimed invention. Without the present invention as a template, a person of ordinary skill in the art clearly would not have been motivated to combine APA and Taylor in the manner proposed by the Examiner. As *In re Fine* clearly warns, “[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” *In re Fine*, 837 F.2d at 1075.

The Examiner further improperly referred to “knowledge generally available to one of ordinary skill in the art.” *See* Advisory Action at 2. The Advisory Action does not state what this “knowledge” includes, nor does the Advisory Action cite to any evidence to support such “knowledge.” In fact, the final Office Action dated March 28, 2006 never cited to such “knowledge generally available to one of ordinary skill.” Without explaining what the “knowledge” specifically includes, and without citing to objective evidence to establish this “knowledge,” the Examiner has clearly erred in relying on this “knowledge” to provide the motivation to combine APA and Taylor.

In the final Office Action, the Examiner referred to the “Related Art” section of the present application as being the APA. The “Related Art” section provides a description regarding failure of a seal in control line connections. The “Related Art” section further discusses that a prior art downhole seal can include a rubber or elastomeric seal, a metal-to-metal seal, and a seal that depends upon fluidic pressure. The remaining portion of the “Related Art” section of the present application indicates that these prior art seals are often unreliable or not suitable for certain applications. Importantly, there is *absolutely no suggestion* whatsoever in the

“Related Art” section of a preload member to apply a force to and induce cold flow of a thermoplastic seal to seal against the outer surface of a cable, as recited in the claims.

Recognizing that the APA fails to disclose or even remotely suggest this claim feature, the Examiner instead relied upon Taylor. 3/28/2006 Office Action at 2. Reference was made by the Examiner to a thermoplastic seal 19 and metal ferrules 11, 12 that abut ends of the seal 19 in Taylor. However, aside from picking and choosing isolated disclosures in the cited references, the Examiner has failed to cite any objective evidence of the required motivation or suggestion to combine the teachings of APA and Taylor.

Although Taylor teaches sealing at a coupling 6 between two pipes 1 and 2 (see Figs. 1 and 2 of Taylor), there is no suggestion in Taylor of using its mechanism to seal against an outer surface of a cable. Similarly, the APA fails to provide any suggestion of a preload member to apply a force to and induce cold flow of a thermoplastic seal.

Clearly, neither Taylor nor APA even remotely suggests a preload member to apply a force to and *induce cold flow of a thermoplastic seal to seal against the outer surface of the cable*, as recited in claim 1. Because the Examiner has failed to cite to any motivation or suggestion to combine the teachings of APA and Taylor, a *prima facie* case of obviousness has clearly not been established with respect to independent claim 1.

In view of the foregoing, reversal of the final rejection of the above claims is respectfully requested.

2. Claims 15, 16, and 20.

Independent claim 15 was also rejected as being obvious over APA and Taylor. Claim 15 recites providing a control line having an outer surface, where the control line comprises at least one of a hydraulic line, fiber optic line, and electrical line. Moreover, the method of

claim 15 includes providing a seal having a component formed of thermoplastic, and inducing cold flow deformation of the component to create a fluidic seal against the outer surface of the control line. The Examiner conceded that the APA fails to disclose inducing cold flow deformation of the component (formed of a thermoplastic) to create a fluidic seal against the outer surface of the control line. 3/28/2006 Office Action 2. As with claim 1, the Examiner relied upon Taylor as disclosing the claimed feature missing from APA.

As similarly discussed above, neither Taylor nor APA suggests inducing cold flow deformation of a component formed of a thermoplastic to create a fluidic seal against the outer surface of the control line. Therefore, the Examiner has failed to establish the requisite motivation or suggestion to combine Taylor and APA to achieve the claimed subject matter. In view of the foregoing, a *prima facie* case of obviousness has also not been established with respect to independent claim 15.

Reversal of the final rejection of the above claims is respectfully requested.

3. Claims 28, 29, and 37.

Independent claim 28 was also rejected as being obvious over the asserted combination of APA and Taylor. Claim 28 recites an apparatus that comprises a control line having an outer surface, the control line comprising at least one of a fiber optic line and an electrical line, and a seal that comprises a ferule and an adjacent seal member deformed by cold flow about at least a portion of the ferule to seal against the outer surface of the control line.

The Examiner conceded that the APA fails to disclose the seal of claim 28, and in particular the seal having a ferule and an adjacent seal member deformed by cold flow about at least a portion of the ferule to seal against the outer surface of the control line. 3/28/2006 Office

Action at 2. Instead, the Examiner relied upon Taylor as disclosing the features of claim 28 missing from APA.

As discussed above, there clearly did not exist any suggestion or motivation to combine APA and Taylor to achieve a seal that has a ferule and an adjacent seal member deformed by cold flow about at least a portion of the ferule to seal against the outer surface of the control line. Therefore, a *prima facie* case of obviousness has also not been established with respect to claim 28.

Reversal of the final rejection of the above claims is respectfully requested.

4. Claim 38.

Independent claim 38 was rejected as being obvious over APA and Taylor. Claim 38 recites an apparatus that comprises a cable and a seal assembly comprising a housing and a deformed thermoplastic seal member that provides a fluidic seal against the housing and the cable.

The Examiner conceded that APA fails to disclose the deformed thermoplastic seal member that provides a fluidic seal against the housing and the cable. 3/26/2006 Office Action at 2. However, the Examiner relied upon Taylor as disclosing the recited feature that is missing from APA.

As discussed above, there clearly did not exist any motivation or suggestion to combine the teachings of APA and Taylor to provide a seal assembly having a deformed thermoplastic seal member that provides a fluidic seal against the housing and the cable. Therefore, *prima facie* case of obviousness has also not been established with respect to claim 38.

Reversal of the final rejection of the above claim is respectfully requested.

B. Claims 8-13, 21-26, 30-35, And 40-45 Rejected Under § 103 Over APA In View Of Taylor And U.S. Patent No. 6,861,131 (Evans).

1. Claims 10-13, 23-26, 32-35, and 42-45.

Claims 10-13, 23-26, 32-35, and 42-45 depend from independent claim 1, 15, 28 or 38.

Therefore, these claims are allowable for at least the same reasons as corresponding independent claims.

With respect to claims 10-13, 23-26, 32-35, and 42-45, the Examiner conceded that “APA as modified by Taylor” fails to disclose the thermoplastic material as PEEK, PEK, PPS, or PEKEEK. 3/28/2006 Office Action at 3. However, the Examiner made the unsupported statement that the “specific thermoplastic material is not a critical feature of the applicant’s invention, and the selection of a known material based upon its suitability for the intended use is a design consideration within the skill of the art.” *Id.*

It is noted that the present Specification states that thermoplastic materials according to some embodiments having a flexural modulus that is \geq 500 psi at room temperature are suitable for downhole applications. Examples of such materials include PEEK, PPS, PEK, and PEKEEK. Neither APA nor Taylor even remotely suggests that these types of recited thermoplastic seals can be used. The Examiner cited Evans as purportedly disclosing these types of thermoplastic materials. However, Evans is directed to a completely different teaching with respect to thermoplastic materials. Evans relates to manufacturing high quality composite materials from fibrous materials. There is absolutely no suggestion whatsoever that the thermoplastic materials listed in column 11 of Evans can be used in a downhole application. The Examiner has thus engaged in impermissible hindsight to piece together isolated teachings of references when no motivation or suggestion existed to make the combination. A *prima facie* case of obviousness has therefore not been established with respect to these dependent claims.

Reversal of the final rejection of the above claims is respectfully requested.

2. Claims 8, 9, 21, 22, 30, 31, 40, and 41.

Claims 8, 9, 21, 22, 30, 31, 40 and 41 depend from independent claim 1, 15, 28 or 38, and thus are allowable for at least the same reasons as corresponding independent claims. Moreover, with respect to these claims, the Examiner made the following statement: “the APA as modified by Taylor and Evans discloses the thermoplastic material as PEEK, PEK, PPS, or PEKEEK, then [sic] this thermoplastic material inherently possesses the claimed tinsel modulus in flexural modulus range.”

As discussed above, there absolutely did not exist any motivation or suggestion to combine the teachings of Evans with APA and Taylor. Therefore, a *prima facie* case of obviousness has also not been established with respect to the above claims.

Reversal of the final rejection of the above claims is respectfully requested.

C. Claims 8, 9, 14, 21, 22, 27, 30, 31, 36, 40, 41, And 46 Rejected Under § 103 Over APA In View Of Taylor And U.S. Patent No. 6,384,128 (Wadahara).

1. Claims 14, 27, 36, and 46.

Claims 14, 27, 36 and 46 were rejected as obvious over APA, Taylor and Wadahara.

With respect to these claims, the Examiner conceded that APA and Taylor fail to disclose the additional recited subject matter. Instead, the Examiner relied upon Wadahara as disclosing the additional subject matter. 3/28/2006 Office Action at 4. Specifically, with respect to these claims, the Examiner conceded that APA and Taylor fail to teach a thermoplastic seal that comprises PET. Instead, the Examiner relied upon Wadahara as disclosing the use of PET. There existed absolutely no suggestion to combine the teachings of APA, Taylor, and Wadahara.

APA and Taylor provide no suggestion whatsoever of using PET in a thermoplastic seal. Wadahara, on the other hand, relates to a thermoplastic resin composition capable of providing a thin walled molded article having a desired flame retardancy. There existed no suggestion in Wadahara that it would even be desirable to incorporate its PET material in an application providing a seal around a cable or control line.

A *prima facie* case of obviousness has therefore not been established with respect to the above claims. Thus, reversal of the final rejection of the above claims is respectfully requested.

2. Claims 8, 9, 21, 22, 30, 31, 40, and 41.

Claims 8, 9, 21, 22, 30, 31, 40, and 41 are allowable for at least the same reasons as corresponding independent claims. Moreover, in view of the discussion above, there existed no motivation nor suggestion to combine APA, Taylor and Wadahara to achieve the claimed subject matter.

Reversal of the final rejection of the above claims is therefore respectfully requested.

VIII. CONCLUSION

In view of the foregoing, reversal of all final rejections and allowance of all pending claims is respectfully requested.

Respectfully submitted,

Date: Aug 28, 2006


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APPENDIX OF APPEALED CLAIMS

The claims on appeal are:

- 1 1. An apparatus comprising:
 - 2 a cable having an outer surface; and
 - 3 a seal assembly, comprising:
 - 4 a thermoplastic seal;
 - 5 a preload member adapted to apply a force to and induce cold flow of the
 - 6 thermoplastic seal to seal against the outer surface of the cable.

- 1 2. The apparatus of claim 1, wherein the seal assembly further comprises a ferrule abutting
2 an end of the thermoplastic seal.

- 1 3. The apparatus of claim 2, wherein the ferrule is formed of a metal material.

- 1 6. The apparatus of claim 1, wherein the preload member is a threaded mandrel.

- 1 8. The apparatus of claim 1, wherein the thermoplastic seal has a tensile modulus equal to or
2 greater than 500,000 psi at room temperature.

- 1 9. The apparatus of claim 1, wherein the thermoplastic seal has a flexural modulus equal to
2 or greater than 500,000 psi at room temperature.

- 1 10. The apparatus of claim 1, wherein the thermoplastic seal comprises PEEK.

- 1 11. The apparatus of claim 1, wherein the thermoplastic seal comprises PEK.

- 1 12. The apparatus of claim 1, wherein the thermoplastic seal comprises PPS.

- 1 13. The apparatus of claim 1, wherein the thermoplastic seal comprises PEKEKK.

- 1 14. The apparatus of claim 1, wherein the thermoplastic seal comprises PET.
- 1 15. A method for sealing, comprising:
 - 2 providing a control line having an outer surface, the control line comprising at least one
 - 3 of a hydraulic line, fiber optic line, and electrical line;
 - 4 providing a seal having a component formed of a thermoplastic;
 - 5 inducing cold flow deformation of the component to create a fluidic seal against the outer
 - 6 surface of the control line.
- 1 16. The method of claim 15, further comprising applying a preload to the seal to induce the
- 2 deformation.
- 1 20. The method of claim 16, further comprising maintaining the preload on the seal.
- 1 21. The method of claim 15, wherein the thermoplastic component has a tensile modulus
- 2 equal to or greater than 500,000 psi at room temperature.
- 1 22. The method of claim 15, wherein the thermoplastic component has a flexural modulus
- 2 equal to or greater than 500,000 psi at room temperature.
- 1 23. The method of claim 15, wherein the thermoplastic component comprises PEEK.
- 1 24. The method of claim 15, wherein the thermoplastic component comprises PEK.
- 1 25. The method of claim 15, wherein the thermoplastic component comprises PPS.
- 1 26. The method of claim 15, wherein the thermoplastic component comprises PEKEKK.
- 1 27. The method of claim 15, wherein the thermoplastic component comprises PET.

- 1 28. An apparatus comprising:
 - 2 a control line having an outer surface, the control line comprising at least one of a fiber
 - 3 optic line and electrical line; and
 - 4 a seal, comprising:
 - 5 a ferrule; and
 - 6 an adjacent seal member deformed by cold flow about at least a portion of the
 - 7 ferrule to seal against the outer surface of the control line.
- 1 29. The apparatus of claim 28, wherein the seal comprises a thermoplastic component.
- 1 30. The apparatus of claim 29, wherein the thermoplastic component has a tensile modulus
2 equal to or greater than 500,000 psi at room temperature.
- 1 31. The apparatus of claim 29, wherein the thermoplastic component has a flexural modulus
2 equal to or greater than 500,000 psi at room temperature.
- 1 32. The apparatus of claim 29, wherein the thermoplastic component comprises PEEK.
- 1 33. The apparatus of claim 29, wherein the thermoplastic component comprises PEK.
- 1 34. The apparatus of claim 29, wherein the thermoplastic component comprises PPS.
- 1 35. The apparatus of claim 29, wherein the thermoplastic component comprises PEKEKK.
- 1 36. The apparatus of claim 29, wherein the thermoplastic component comprises PET.
- 1 37. The apparatus of claim 28, further comprising a preload member.

1 38. An apparatus comprising:
2 a cable; and
3 a seal assembly, comprising:
4 a housing;
5 a deformed thermoplastic seal member that provides a fluidic seal against the
6 housing and the cable.

1 40. The apparatus of claim 38, wherein the seal member has a tensile modulus equal to or
2 greater than 500,000 psi at room temperature.

1 41. The apparatus of claim 38, wherein the seal member has a flexural modulus equal to or
2 greater than 500,000 psi at room temperature.

1 42. The apparatus of claim 38, wherein the seal member comprises a PEEK material.

1 43. The apparatus of claim 38, wherein the seal member comprises a PEK material.

1 44. The apparatus of claim 38, wherein the seal member comprises a PPS material.

1 45. The apparatus of claim 38, wherein the seal member comprises a PEKEKK material.

1 46. The apparatus of claim 38, wherein the seal member comprises a PET material.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.